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HOW TO KNOW SOME OF THE COMMONER BRYUMS.

BY ELIZABETH G. BRITTON.

THERE are about 500 species of *Bryum*; 195 have been reported from Europe and North America, 50 of which are common to both. Taking it for granted that those who will use this article know the differences between *Leptobryum*, *Webera*, and *Bryum*, and that they are not likely at first to collect any of the rarer species of the other sections, I will describe, as briefly as possible, the few species of *Eubryum* and *Rhodobryum* which are most often collected. Dividing the *Eubryums*, as Dixon does, into two series, the first to include the larger species with long, narrow leaves, excurrent costa, usually prolonged into an awn, with tall pedicels, and capsules generally one-eighth to one-quarter of an inch long; the second to include the smaller species, with small leaves, rarely acuminate, the costa ending with or below the apex; the capsules small, and often deep red. In the first group we have five of the species described, four of them common.

Bryum bimum is common in wet woods at base of trees, in swamps, on rocks and moist banks, and even on old stone walls and railroad cuttings, having been reported from Newfoundland to Vancouver Island, and in the United States from Maine to Florida, and Washington to California. As Dixon says: "It is not to be confounded with any other except *B. pseudotriquetrum*, on account of its robust habit, the large leaves with short points and long capsules on a tall seta, and the synoicous inflorescence." The stems are matted together by a red-brown felt of radicles, and the leaves are twisted when dry, the margins strongly recurved, and bordered by several rows of narrow cells. The var. *elatum* grows in very wet places, and I have collected it in a spring in Smuggler's Notch, five inches high. *Bryum pseudotriquetrum* (*B. ventricosum*) is considered by Dixon to be only a dioicous form of *B. bimum*. It has the same range in the United States, and often grows with it, here as well as in England. *B. intermedium* is almost as common a species, with as wide a range, preferring moist places, but resembling more in its leaves *B. caespiticium*, from which it differs in being synoicous and in maturing its capsules later, in summer and autumn, instead of spring, having an incurved capsule with small mouth, and pale teeth.

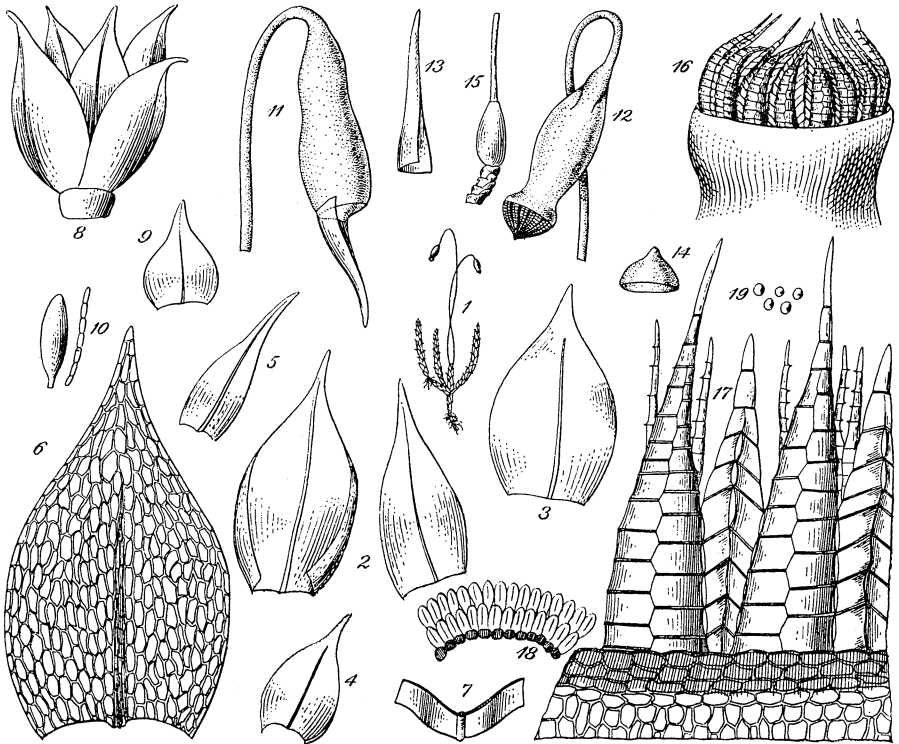
Bryum caespitium, as its name indicates, forms dense tufts, bright green and glossy. The leaves end in a long serrate bristle, are crowded, but not twisted when dry, with narrow marginal cells. It is conspicuously dioicous, the antheridial heads mingled with the fertile plants. The pedicels and capsules are shorter than in *B. bimum*. It is common under trees in open woods, and on old walls, ranging throughout Europe and Asia, reaching 14,000 feet in the Himalayas. In North America also it is very common, having been collected in nearly every State and throughout British America.

Bryum capillare is so named for the thread-like points of the leaves, which are wider than in *bimum* or *caespitium*, spirally twisted when dry, and less crowded on the stem. The plants are usually dioicous, but here again Dixon ignores species based solely on this character and unites with it *B. torquescens*, which is usually synoicous, but known to be variable. Both species love rich, loamy soil in woods, preferring hilly or mountainous regions, and are oftenest found on rock ledges in the Alleghenies and Rocky Mountains, ranging southward down the Andes. It forms soft dark green tufts, fruits but seldom, and varies greatly in the length of the costa, which may be either percurrent, excurrent, or disappear below the apex, but is smooth. Sterile plants have been collected in the Hemlock Grove in Bronx Park, and on the Palisades Austin found the var *flaccidum* on wet, shady rocks. It fruits in summer.

Bryum argenteum may be taken as the type of the second group of smaller species. It certainly is the most cosmopolitan, found throughout Europe and Asia, ranging from sea-level to 12,000 feet in the Himalayas and the Andes, where it becomes conspicuously white and is known as the var. *lanatum*. It is very common in the United States and Canada, in sandy soil and waste places, and has been collected in several cities between the paving stones and bricks, also on old roofs, walls, and door-mats. It fruits abundantly, maturing during the fall and winter, but keeping it almost throughout the year. It is also the most easily recognized of any of the species, except *B. roseum*, by its silvery, gray leaves, which, when old, are white and without chlorophyll at apex, but when young are green and then liable to be mistaken for some other species. The leaves are crowded on the stems, overlapping each other, making the stems julaceous, and ending in a slender bristle forming a brush of hairs at the tips of the

branches. The pedicels and capsules are a dark red when ripe, and the lid and annulus are large and make beautiful objects under the microscope, as well as the peristome.

Bryum roseum (*Rhodobryum proliferum*) is the largest and showiest of our *Bryums*, forming rosettes of leaves at the summits of the erect stems which arise from creeping stolons, and are almost leafless below. Only under favorable circumstances does this species form mats or cushions; usually the plants are scat-



DESCRIPTION OF PLATE.

Bryum argenteum.—1. Plant, natural size. 2-5. Outlines of leaves. 6. One leaf enlarged, showing cells. 7. Cross-section. 8. Antheridial head. 9. Bract. 10. Antheridium and paraphysis. 11. Young capsule with calyptra. 12. Old capsule. 13. Calyptra. 14. Lid. 15. Vaginule at base of seta. 16. Peristome. 17. Portion of peristome, with two teeth, two keeled segments and cilia. 18. Annulus. 19. Spores.

tered, and in this region sterile. The fruit is also rare in England. The rosettes are sometimes quite small, and scattered in among other mosses, though they may reach half an inch across, bearing as many as five capsules on stout, erect pedicels, the capsules often one-quarter of an inch in length, and slightly curved. Kindberg has separated off *B. Ontariense* as a species, but the differences which he notes are seen also in European specimens, according to Cardot, who believes it to be simply a form of *B. roseum*. Certainly there are great differences in specimens according to habitat. The species has a wide range, but is most common in the East, from New Brunswick to Ontario, and Maine to Virginia, also in California. It grows in woods, on rocks and logs and at the base of trees, in rich, loamy soil, and a few depauperate specimens have been found in Bronx Park. Mats of it, brought down from the Adirondacks, have suffered from our hot, dry summers. In Mexico and South America there are several closely allied species, and the genus seems to reach its maximum development in Japan, where one species grows which is six inches in height, and has rosettes an inch across.

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CLAOPODIUM PELLUCINERVE (Mitt.)

AMONG a number of interesting mosses brought back from the Yukon Territory by Mr. R. S. Williams is *Claopodium pellucinerve*. Although destitute of fruit, yet when compared with a specimen of this species kindly sent to me by Dr. Mitten, it is found to be unquestionably the same. *C. pellucinerve* was originally described as *Leskea* in *Mitt. Musc. Ind. Or.* and was collected at Simla, North India. Comparing it with the recognized North American *Claopodia** it is found to be somewhat intermediate between *C. Whippleanum* and *C. Bolanderi*, differing from the former in not having the leaves of the terminal branches two-ranked, the stem leaves entire and not margined by a row of curvilinear cells, the median cells oval rhombic, distinctly studded by minute, bead-like papillæ, and the subfiliform acumen hyaline pointed. From *C. Bolanderi* it differs in being smaller, the stem leaves 0.25-0.35mm. wide and 0.5-0.7mm. long, the median cells oval-rhombic, not quadrate hexagonal as in that species, and in the more numerous and distinct papillæ. Dr. Mitten informs me that the capsule of *C. pellucinerve* is exactly the same as that of *C. Whippleanum*.—*G. N. Best, Rosemont, N. J.*

*Bull. Torr. Club 24: 427. 1897.